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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/821,778	03/29/2001	Chengda Yang	1748/110	5517
2101	7590	02/06/2004	EXAMINER	
BROMBERG & SUNSTEIN LLP 125 SUMMER STREET BOSTON, MA 02110-1618			LEE, MICHAEL	
		ART UNIT		PAPER NUMBER
		2614		8

DATE MAILED: 02/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	09/821,778	YANG ET AL.
Examiner	Art Unit	
M. Lee	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### **Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 29 March 2001.

2a)  This action is **FINAL**.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)  Claim(s) 1-41 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) 9-18, 26-35 and 39-41 is/are allowed.

6)  Claim(s) 1-6, 19-23, 36-38 is/are rejected.

7)  Claim(s) 7, 8, 24 and 25 is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All    b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 6.

4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.  
5)  Notice of Informal Patent Application (PTO-152)  
6)  Other: \_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-6, 19-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Sid-Ahmed (5,621,470).

Regarding claim 1, Sid-Ahmed discloses an adaptive interpolating filter for converting a lower resolution image to a higher resolution image (col. 1, lines 56-62, col. 2, lines 53-57, col. 6, lines 14-25), which meets the upconverting step as claimed.

Regarding claim 2, the input signals are intended to be either digital or analog (col. 2, lines 53-57).

Regarding claim 3, each frame or field of the input video signals is a part of a set of video frames or fields.

Regarding claim 4, Sid-Ahmed is intended to convert all the input video signals.

Regarding claim 5, the filtering step in Sid-Ahmed is carried out by a digital processor (col. 2, lines 35-52).

Regarding claim 6, Sid-Ahmed shows a finite impulse response type or an infinite impulse response type digital filter, which meets the space variant approximation filtering as claimed since the coefficients change from pixel to pixel in these filters.

Regarding 19, Sid-Ahmed shows that the original 485 active lines are normalized into 525 lines (col. 2, lines 57-63), which meets the normalizing step as claimed because by converting 485 lines to 525 lines, the input and output aspect ratios are the same now, and a 3-D filter (col. 1, lines 56-62, col. 2, lines 53-57, col. 6, lines 14-25), which meets the filtering step as claimed.

Regarding claim 20, in addition to rejection to claim 19, the 3-D filter in Sid-Ahmed still meets the interpolating step as claimed.

Regarding claim 21, in addition to rejection to claim 19, the 3-D filter in Sid-Ahmed still meets the smoothing step as claimed.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 22-23, 36-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sid-Ahmed (5,621,470).

Regarding claims 22-23, 36, 37, 38, in addition of above, Sid-Ahmed does not specify the computer codes for carrying out the invention as claimed. Instead, the invention in Sid-Ahmed is carried out by a hardware system (col. 2, lines 34-52). In any event, it is well known in the art that a computational step can be implemented by either a computer hardware or software. It is a matter of design choice. The difference between the hardware implementation and software implementation is that the former

can process data in a higher speed because it is devised to do a single task while the later is slower but can be flexibly altered. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement Sid-Ahmed by a computer software if flexibility is being sought.

***Allowable Subject Matter***

5. Claims 9-18, 26-35, 39-41 are allowed.
6. Claims 7, 8, 24 and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
7. The following is a statement of reasons for the indication of allowable subject matter: Prior art does not specify or teach the gradient estimating step, the selecting step, the coefficient estimating step, and the determining step as recited in claim 9, the defining step, the estimating step, the selecting step, and the determining step as recited in claim 26, estimating step, and the using step as recited in claim 41, and the anisotropic approximation as recited in claims 7, 8, 24 and 25.

***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Keating (5,404,170) shows an adaptive time base converter.

Glenn (5,349,385) shows an adaptive scan converter.

Kim et al. (5,793,433) shows an aspect ratio converter.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. Lee whose telephone number is **703-305-4743**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **John Miller**, can be reached at **703-305-4795**.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**

**(703) 872-9306 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.



**M. Lee**  
**Primary Examiner**  
**Art Unit 2614**

February 4, 2004